

REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

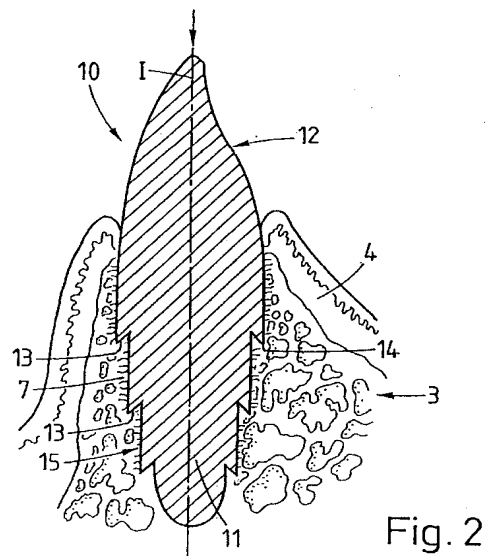
Applicant would also like to thank the Examiner for discussing this matter on December 8, 2010 and the Examiner's summary of the discussion. Applicant does not agree that the amended claim features are disclosed by helical screw threads, but nevertheless, Applicant has amended independent claims 1 and 47 herein based on the conversation with the Examiner.

Claims 1-26, 46 and 47 remain in the application. Claims 1, 46 and 47 have been amended herein. Claims 1 and 47 have been amended to better define the claimed cutting edge and introduce angles β and γ which are illustrated in Figs. 5A and 5B of the application. Claim 46 has been amended to remove changes made previously.

Independent claims 1 and 47 have been amended to better describe the orientation of the cutting edges of the claimed implant. Specifically, the claim language distinguishes the cutting edges from typical screw threads, which are shown in the cited references to Schulte, Lang and Lazarof and incorporated in the rejection of the present claims. In contrast, and as can be seen in Applicant's Fig. 2 (reproduced below), Figs 5A and 5B as well as the description of the specification (at least paragraphs [0015] and [0080] of the substitute specification), the claimed cutting edges do not cut inward generally horizontally like a screw thread, but

instead point generally downward and cut a chip upon insertion. In the amended claims this is shown in the statement regarding “cutting edges facing toward a distal end region” and as a result being “chip forming cutting edges”. In operation, the claimed cutting edge creates a chip(s) as it is pushed into place along the implant axis. In contrast, a common screw thread cuts inwardly in a general horizontal direction, and does not create a chip, or at least not a chip that is similar to that made by the claimed cutting edge. Instead, the screw thread causes a compression of the bone material on either side of its cutting edge.

It is not possible to drive a self-cutting screw type implant into the bone tissue in a movement parallel to the implant axis without an inherent lateral component as part of the rotational movement. In contrast to screw threads, the claimed cutting edges are pushed into the bone tissue substantially without rotation or excessive application of torque and remove chips from the bone tissue surrounding the implant cavity (see for example Fig. 6 of Applicant's specification). A self cutting screw thread will not form such a chip. Independent claim 47 has been amended in a



similar manner as claim 1.

Claims 1-19, 21-26 and 46-47 stand rejected under 35 U.S.C. §103(a) as being unpatentable over WO/02069817 to Aeschlimann et al (hereinafter Aeschlimann) in view of U.S. 5,199,873 to Schulte et al. (hereinafter Schulte) and U.S. 5,088,926 to Lang (hereinafter Lang). For the following reasons, the rejection is traversed.

Applicant believes that as the combination of references is presented in the Office action, the features of the claimed device are not taught or suggested. Schulte and Lang each teach screw threads. The Office action states on page 3 that Aeschlimann fails to teach cutting edges that are capable of cutting the cavity wall of bone tissue and as such imports the self tapping screw threads of Schulte in order to accomplish this requirement. Applicant concurs that the edges on either side of the device of Aeschlimann are not cutting edges, as Aeschlimann discloses nothing about them. Aeschlimann, in Fig. 22, depicts the same implant prior and after implantation: the protruding edges are pointing upwards prior to the application of ultrasound (left side) and they are point downwards after the application of ultrasound in the implanted state (right side). This is not consistent with an interpretation of the protruding spikes as being cutting edges.

Applicant believes that in order to incorporate that thread configuration of Schulte into the device of Aeschlimann, certain features of Aeschlimann are lost. Specifically, the exterior structure of the device in Fig. 22 in Aeschlimann is lost if the threads of Schulte (or Lang) are incorporated into the device. Simply, the orientation of a cutting edge on a screw thread (pointing inwards in relation to the bone material) is inconsistent with the orientation disclosed in Aeschlimann.

Thus, when Schulte is incorporated with Aeschlimann, the combination lacks “chip forming cutting edges cutting the cavity wall of bone tissue” these cutting edges “facing toward a distal end region of the implant” which is required by independent claims 1 and 47. It follows that “said *cutting edges* being located outside the second type of surface ranges to be created” is also not taught or suggested. In fact, as Schulte and Lang are silent regarding surface ranges of liquefiable material, they teach nothing about a spatial relationship of any type of cutting edge with such a surface range of liquefiable material.

Additionally, the proposed combination does not teach or suggest the claimed orientation of the distal edge surface defining the cutting edge. Specifically, the angle between this surface and the implant axis is about 90 degrees or less. However, in the screw threads disclosed in Schulte, Lang and Lazarof, a comparable angle is greater than 90 degrees.

Further, Applicant believes it is improper to combine Aeschliman with Schulte or Lang, as Aeschlimann teaches away from such a combination. A large torsional force is required by self-cutting screw threats during implantation. Both Schulte and Lang teach threads requiring such a large torsional force. However, Aeschliman teach use of a device that requires little or no torsional force to implant and thus teaches away from including components that do require such forces.

In column, 1, line 28, Aeschlimann discusses the self-cutting screws of the state of the art, and on line 35 mentions the disadvantage of the large torsional forces to be applied on implantation of such self-cutting screws and of the generation of considerable heat produced during frictional engagement. Thus, Aeschlimann teaches away from combining self-cutting screws with the devices

disclosed therein.

Regarding claim 46, it is believed that the proposed combination of references does not teach or suggest:

Wherein the implant portion to be implanted comprises a first type of surface ranges of a material, which is liquefiable by mechanical oscillation, and

The implant portion to be implanted comprises cutting edges being located outside of the surface ranges of liquefiable material provided

As stated in previous amendments, Applicant believes that Aeschlimann does not teach the required surface ranges of material as the material 44 in Aeschlimann is located inside of the implant, but not on the outside surface.

Thus, reconsideration and withdrawal of the rejection of independent claims 1, 46 and 47, as well as dependent claims 2-19 and 21-26 as being over unpatentable over Aeschlimann in view of Schulte and Lang.

Claim 20 stands rejected under 35 U.S.C. §103(a) as being unpatentable over WO/02069817 to Aeschlimann et al (hereinafter Aeschlimann) in view of U.S. 5,199,873 to Schulte et al. (hereinafter Schulte) and U.S. 5,088,926 to Lang (hereinafter Lang) and further in view of U.S. 6,142,782 to Lazarof. For the following reasons, the rejection is traversed.

As stated above, when combined Aeschlimann, Schulte, and Lang produce a device including typical screw-type threads. Lazarof also only discloses this type of thread. Thus, as claim 20 depends indirectly from claim 1, claim 20 is believed to be allowable at least for the same reasons stated above with regard to claim 1.

Reconsideration and withdrawal of the rejection of claim 20 under 35 U.S.C. §103(a) is respectfully requested.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. FRG-15998.

Respectfully submitted,

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